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Specifications

NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installlation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

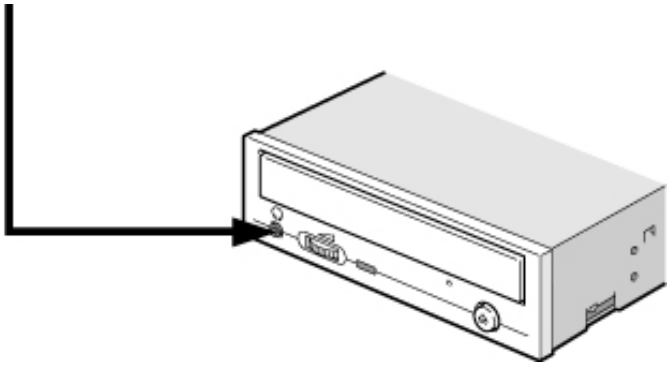
Warning as to USE

This CD-RW & DVD+RW/+R drive together with its bundled software is a product for using rewritable, erasable, and readable CD-R/RW&DVD+RW/+R media. Copying or reproducing commercial CD-ROM or any other copyrighted materials is against the copyright laws and prohibited unless specifically permitted by the copyright laws (including the case of personal use), or unless you have obtained permission to do so from the rightholder.
Take notice that unauthorized reproduction may be subject to claims for the loss and to penalties.

CAUTION
Rating voltage for peripherals.

1. Headphone Jack

   Rating Voltage output Audio Signal Max. 2V



FCC WARNING
Changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Lower a volume
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

The volume that exceeds 70dB occurs and the obstacle sometimes breaks out.

CE

Declaration of Conformity
"The Product complies with the requirements of the EMC Directive 89/366/EEC and the **Low Voltage Directive 73/23/EEC.**"

- Please take notice that the manufacturer of this equipment does not offer any warranty against data loss due to inappropriate installation or handling, or direct or indirect damages.
- Please take notice that the manufacturer will bear no responsibility for direct or indirect damages caused by the use of this product or its malfunction.
- Please take notice that the manufacturer will bear no responsibility for damage to data caused by this product.
- Please backup (copy) all important data as protection against data loss.

- PC DOS is a trademark of IBM Inc.
- MS-DOS, Windows, Windows ® 95, Windows ® 98, Windows ® Me, Windows NT®, Windows® 2000 and Windows® XP*1 are trademarks registered in the United States and other countries by the Microsoft Corporation.

- The company names and product names written in this manual are trademarks or registered trademarks.

*1 For information on Windows® XP supports, visit Ricoh's Web site.

Conventions

This manual uses the following symbols to indicate important information relating to the drive.

	Failing to comply with the information in this manual and/or incorrect handling of the drive may result in serious personal injury or damage to the product.
	Indicates restriction or precaution that should be observed.
	Provides useful additional information.

Introduction

This user's manual (hereafter referred to as "the manual") contains important notes and product handling information. Be sure to read the manual before using the product. For easy reference in the future, please keep the manual at a handy location.

Multimedia Printer series

Thank you for purchasing the Multimedia Printer series drive MP5125A (hereafter referred to as "the drive"). The drive allows you to play DVD-ROM/CD-ROM media, write to and play DVD+R/CD-R media, write to, play, and edit DVD+RW/CD-RW media that are rewritable.
In order to operate the drive connected with your computer, you need some writing software. For information about necessary items for connecting with a computer and about the software you use, refer to the documentation of the software.

The following marks indicate media that can be used with the drive.

A technology called JustLink® incorporated that overcomes buffer underrun problems

Buffer underrun errors that would occur when data transfer falls behind writing operation has been inevitable for CD-R/RW drives. JustLink®, which we at Ricoh developed on our own, is a technology that predicts possible occurrences of buffer underrun errors in advance and automatically avoids them. The MP5125A is the industry's first-ever drive that features JustLink®. With this technology, the MP5125A ensures stable writing operation even under circumstances where buffer underrun errors tend to occur with conventional drives.

Handling Procedures

Obey the following cautions when handling the drive or discs.

Cautions During Installation

- Install the drive in accordance with the specifications. Be careful to avoid locations likely to cause vibration or shock.
- Avoid locations where there is high humidity, excessive dust, or poor ventilation.
- Avoid locations in direct sunlight, with severe changes in humidity, or places where there are extremely high or low temperature variations.
- Don't use the drive near radio or television receivers. It may interfere with their reception.
- Do not disassemble the drive. Dismantling the drive to attempt repairs or for other reasons is dangerous because the laser may radiate outside the unit.

Cautions During Use

- DVD-R/RW (DVD hyphen R/RW)/DVD-RAM media cannot be used.
- Don't suddenly move the drive from a cold place to a warm place, or suddenly raise the room temperature. Condensation may occur, causing abnormal operation.
- Make sure to remove the media before moving the drive. The media may be damaged, causing data loss.
- Be careful to prevent foreign objects such as liquids or metal from entering the drive. Should by chance a foreign object enter the drive, please consult the dealer where the drive was purchased.
- Don't use benzene or thinner to clean dirt from the drive. Don't allow chemicals such as insecticides to contact the drive. Use a soft cloth to wipe the drive, or moisten a cloth with neutral detergent diluted with water and use it to clean particularly dirty areas.
- Don't cutoff the electric power while the drive is operating.
- When connecting two E-IDE devices to the Primary or Secondary connectors, make sure that the two devices are not both configured as Master, or both as Slave. If they are both set the same, Windows may fail to run or recognize the drives.
- The total length of the E-IDE cable should be less than 18 inches (about 45 cm).
- Make sure the power to the host computer is turned OFF before connecting.
- Never insert a damaged disc into the drive.

- In wintertime, don't use a disc soon after bringing in from outdoors. Use it only after it has reached room temperature.

Cautions Concerning Disc Cleaning

- Remove the media by pressing the eject button.
- Use compressed air to clear dust from the media. (Spray the compressed air for about 5 seconds).
- Check to see if there is dirt on the surface of the media. Be careful not to touch the media with the fingers when doing this. (See Fig. 1)
- After cleaning the media with compressed air, place it on the media tray and mount it.(See Fig. 2)
- We suggest using dry air cleaner as compressed air for cleaning.

Other Cautions

- When moving the equipment, make sure that the media has been removed from the drive.
- When connecting connectors, make sure that the power is OFF. If the power is ON, there is a possibility of short circuit.
- When not using the drive for a long period, dust may adhere to the disc tray. Before using the drive again, use dry air cleaner to remove the dust from the tray.
- Do not use any commercially available cleaning kit, because such a kit may damage the drive.

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fig1

1. Check
2. Recording surface

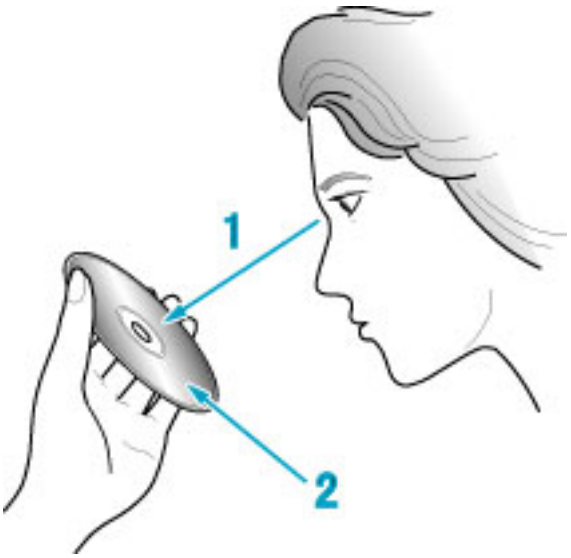

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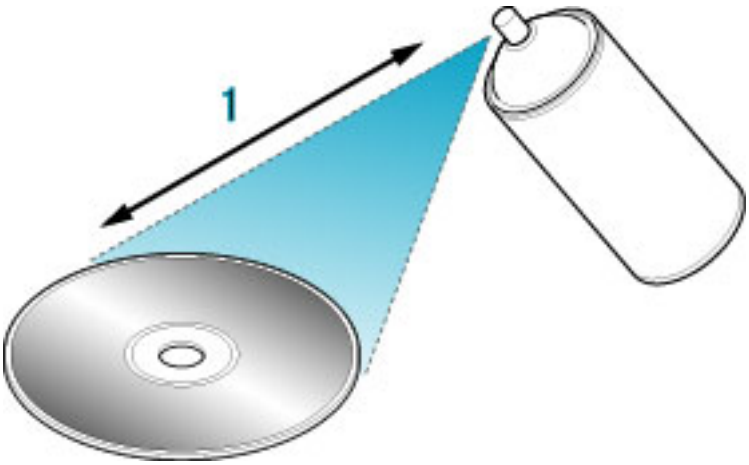
fig2

1. 50 to 100mm



Back

Features

- The drive is a super-combination drive that integrates DVD+RW/+R and CD-RW capabilities. Capitalizing on Ricoh's expertise accumulated with existing CD-RW and DVD-ROM combination drives, we have developed some new mechanisms to achieve incorporation of DVD+RW rewrite capabilities.
- DVD writing has been made possible by tuning up a two-LD (laser diode) one-lens pick-up that has one laser diode for CD and another for DVD.
- With our analog front-end processor LSI for controlling pick-up, seek, and servo mechanisms, as well as our digital controller LSI for controlling encoding/decoding, both of which are newly developed, 2.4x-speed DVD writing which requires even more precise control has been achieved.
- The "radial-tilt correction mechanism" incorporated in the drive senses the disc warpage and inclination and thereby corrects the laser angle so that the laser is always directed toward the disc surface at the right angle. (It functions only when writing to or playing DVD.)
- A high-precision stepping motor is incorporated. This enables precise seeking even on DVD+RW/+R with a narrow track pitch, and achieved reduction of operating noise
- As a CD-RW drive, it provide the performance of 12x CD-R write, 10x CD-RW rewrite, and 32x CD-ROM/R/RW read speeds.
- As a DVD-ROM drive, it provides a performance of 8x read speed.

- **JustLink® has made auto-avoidance against buffer underrun errors possible.**
- An improved anti-heat design means that no cooling fan is needed.
- Easy-to-use tray model.
- Enhanced-IDE (ATAPI) model
- Compliant with industry standard Orange Book Part II (CD-R) and Part III (CD-RW).
- Can read not only CD-R and CD-RW discs, but also video CDs, music CDs, photo CDs*1, and CD-Text
- The recorded CD-RW media can be played in a DVD player or a multi-read CD-ROM Player, maintaining future compatibility.
- Supports random UDF for easy writing to CD-RW discs.
- UDMA-capable

*1 Bundled software does not support this writing format.

System environment

Explains the system environment required for using the drive as a CD-R/CD-RW drive.

PC	IBM PC/AT compatible
Operating System	Windows Me/98/95(ORS2 or later) Windows NT Workstation Ver.4.0 (Service Pack 5) or later Windows 2000 (Professional) Windows XP*4
CPU	• When writing to CD-R/RW: Pentium 166 MHz or higher processors (when JustLink is used). • When playing DVD: Pentium II 350 MHz or higher processor is required (or, if a graphic chip with DVD playback enhancement capability is used, Pentium II 300 MHz or higher processor is required). • When writing to DVD+RW/+R: Pentium II 400 MHz or higher processor (Pentium III 800 MHz processor or higher recommended)*5
Memory	Writing to CD-R/RW: 64 MB or more DVD playback: 64 MB or more Writing to DVD+RW/+R: 128 MB or more (256 MB recommended)
Hard disk	When writing to CD-R/RW: 100 MB or more free space When writing to DVD+RW/+R: 750 MB or more free space (5 GB or more recommended*6)
Interface	Must be Enhanced-IDE compatible. In addition, its Primary Slave, Secondary Master, or Secondary Slave must be blank.
Drive bay	The system unit must have a blank 5.25-inch bay.
Power	The computer system unit must have a blank +5V/+12V power terminal.

Recommendation discs*2

	Recommendation	Tested to be compatible
CD-R	Ricoh	Taiyo Yuden, Mitsui Chemicals, Mitsubishi Chemical, Maxell
CD-RW	Ricoh	Mitsubishi Chemical*1
High Speed CD-RW	Ricoh	Mitsubishi Chemical
DVD+RW*3	Ricoh	Mitsubishi Chemical
DVD+R	Ricoh	

*1 The disc written using the CD-R/RW drive may not be readable by CD-ROM drives. Multi-read compatible (Random UDF compatible) drives are necessary.

*2 **Even if it is the recommendation disc, some of discs may have possibility to fail writing with highest writing speed with the problem on the disc. In this case, please try to write with lower writing speed, or please try to use another disc.**

*3 Ricoh's original phase-change recording material which is field-proven for CD-RW is being used after being customized for DVD use. Rewritable DVD+RW having the capacity of 4.7 GB, the same as DVD-ROM.

*4 For information on Windows XP supports, visit Ricoh's Web site

*5 Recommended when Direct-to-DVD capability is being used.

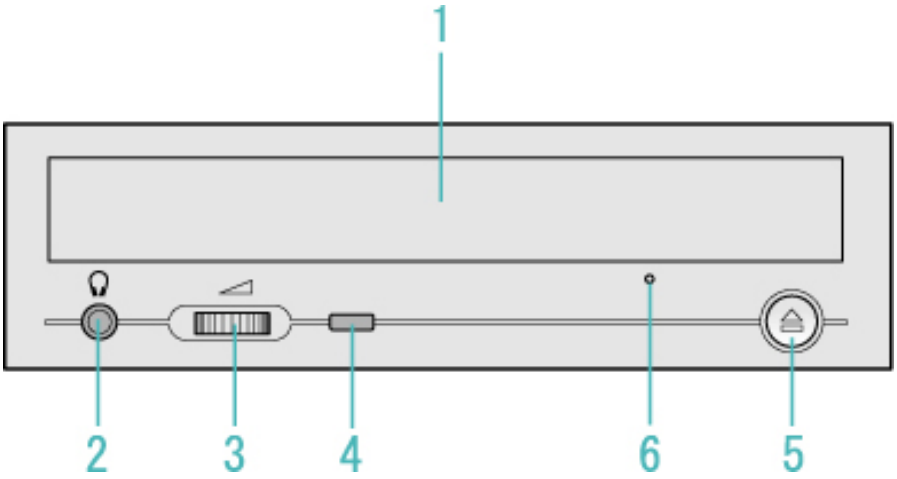
*6 Real-time recording (Pentium 4 1.4 GHz processor is recommended when Direct-to-DVD capability is used). In addition, a video-capture board for image-capturing and the like must be obtained separately.

Multi-read compatible (Random UDF compatible) drives are:

- Drives that can read low reflectivity discs.
- Drives that support Packet Write.

Front Panel
Rear panel

Front Panel



1. ## Disc tray

   This is the tray for the disc. Place the disc on the ejected disc tray, then lightly push the tray (or push the eject button) and the disc will be mounted.

   Caution
   Don't use force to pull out or push in the disc tray. This might cause damage to the loading section of the drive.

2. ## Headphone jack

   This jack is for connecting headphones or mini-speakers.

3. ## Volume control

   This is used to adjust the output volume of the headphone jack. It can't be used to adjust the output volume for the audio output connectors on the rear panel.

   Caution
   Turn the volume down before turning on the power. Sudden loud noises can damage your hearing.

4. ## Busy indicator

   This indicator lights orange when a disc is mounted into the drive. When the disc is being accessed, it flashes or lights orange. If a disc is not mounted, the indicator does not light even when the power is turned on. When a illegal disc is loaded or some hardware trouble occurs, the indicator blinks.

5. ## Eject button

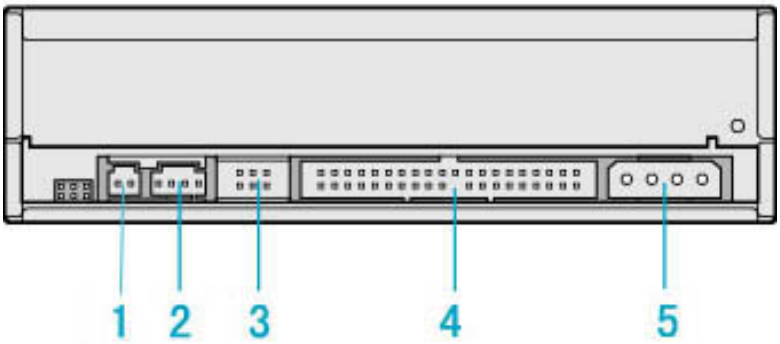
   This is the button used to eject or insert in the disc tray.

6. Emergency eject hole

This drive has a function that allows the disc to be ejected manually for an emergency case such as failure of the drive or a power outage.

Caution
This feature is a last measure to be used only in an emergency. Using it excessively will cause malfunction.

Rear panel



1. Digital Audio (SPDIF) Output Connector

Provides output to a sound card (Digital signal).
* No digital audio cable is included with the MP5125A.

2. Analog Audio Output Connector

Provides output to a sound card (Analog signal).

3. Jumper Connector

This jumper determines whether the drive is configured as a master or slave. Changing the master-slave configuration takes effect after power-on reset.

4. IDE Interface Connector

Connect to the IDE (Integrated Device Electronics) interface using a 40-pin flat IDE cable.

Caution
Do not connect or disconnect the cable when the power is on, as this could cause a short circuit and damage the system. Always turn the power OFF when connecting or disconnecting the cable.

5. Power Connector

Connects to the power supply (5 and 12V DC) of the host computer.

Caution
Be careful to connect with the proper way.
Connecting the wrong way may damage the system (and is not guaranteed).

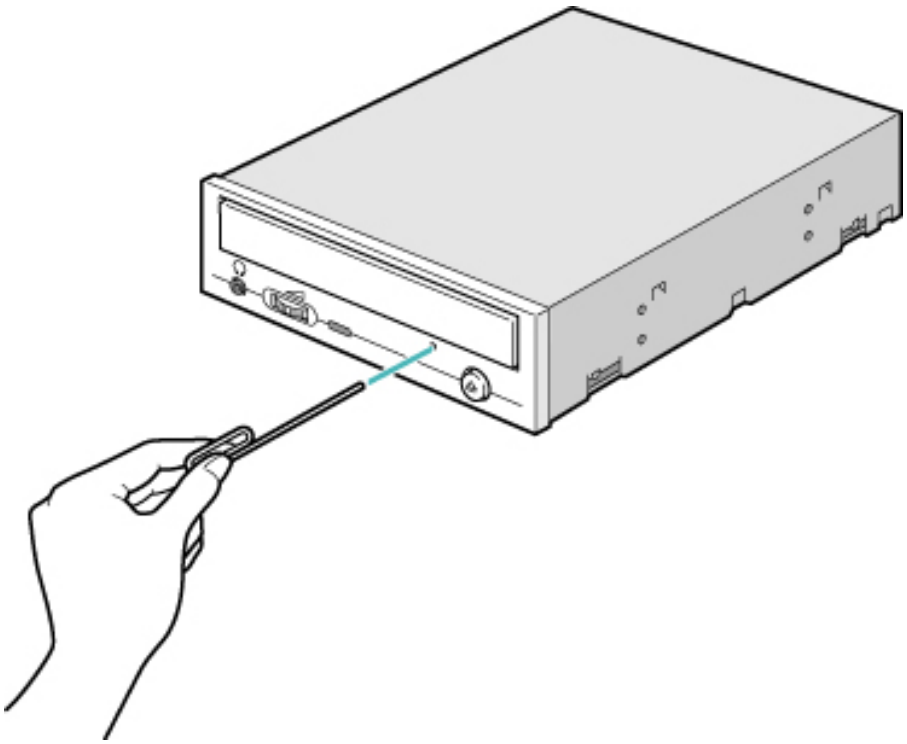
Emergency Eject

This drive has a function that allows the CD to be ejected manually, if this becomes necessary in an emergency such as failure of the drive or a power outage.
Follow the following procedures in such a case.

Caution
This feature is a last measure to be used only in an emergency. Using it excessively will cause malfunction.

1. Turn the power to OFF.
2. Push a thin, stiff wire into the emergency eject hole.
   The disc tray slides out a little.
3. Holding the disc tray with your fingers, slowly pull it straight toward you.

If you cannot get a good grip on the disc tray with your fingers, use a steel binder clip or spring clamp to pull it out.

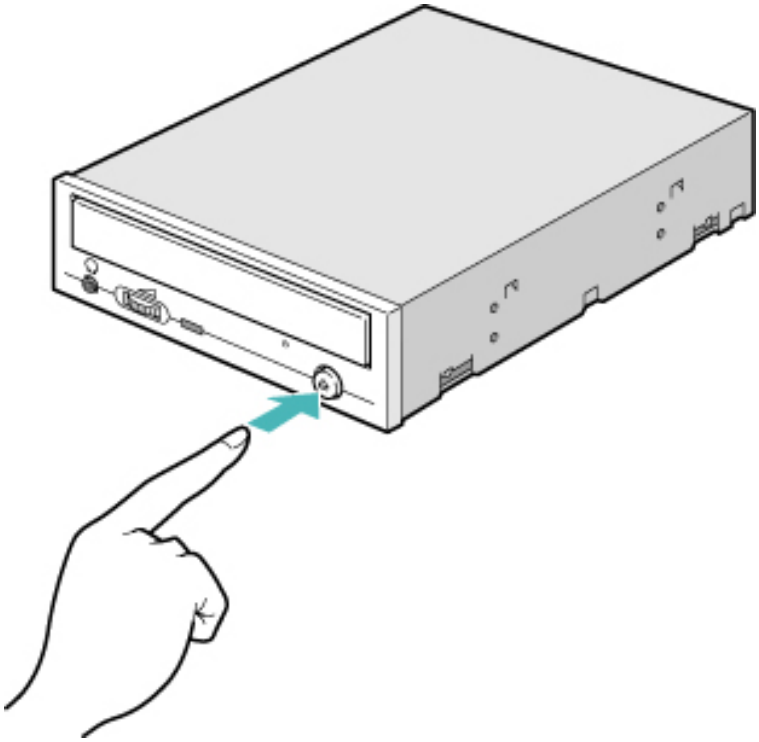


Back Next

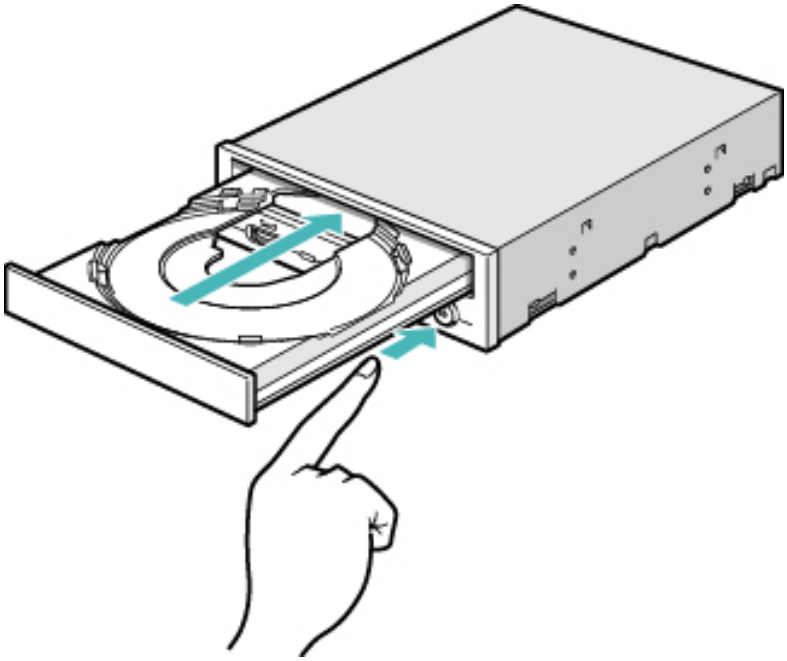
Load the media	Disc ejection
Emergency Eject	Using the Drive in a Vertical Position

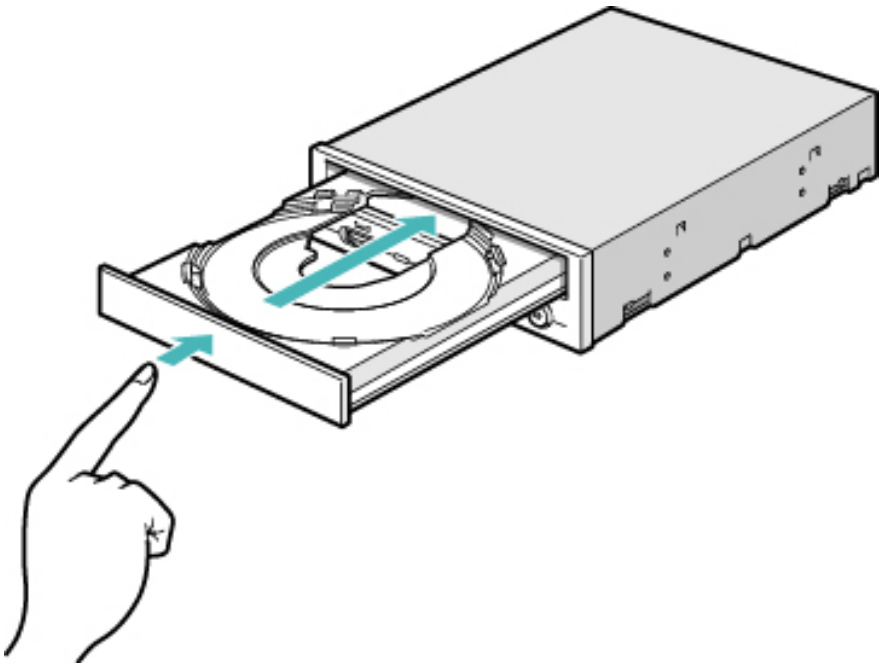
Disc ejection

1. Press the eject button



2. Slowly take the disc out of the disc tray
3. Press the eject button or push the disc tray and the tray will be inserted back into the drive.





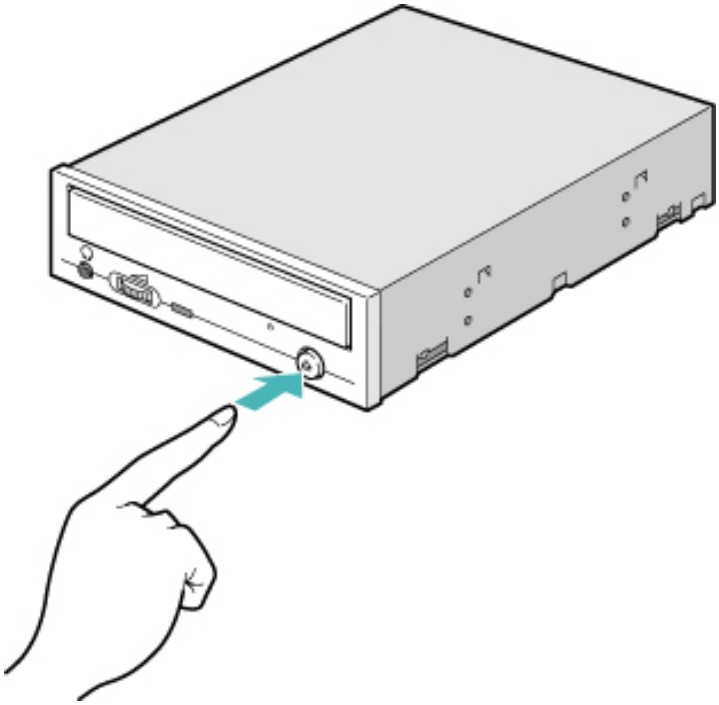
Caution
After ejecting the disc, return the disc tray inside the unit quickly. When the disc tray is in the ejected position, dust and other debris will enter, possibly causing read errors, write errors, or drive failure.

Back Next

Load the media	Disc ejection
Emergency Eject	Using the Drive in a Vertical Position

Load the media

1. Press the eject button.

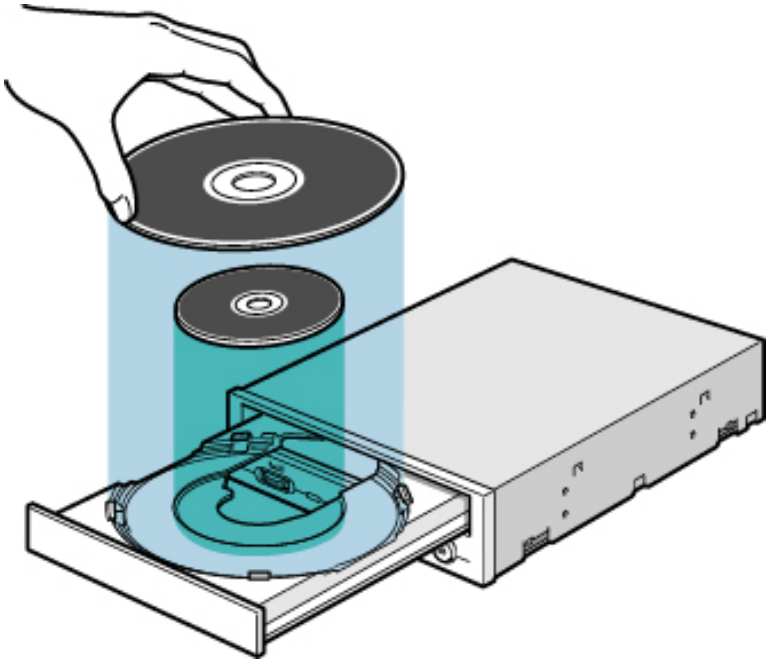


2. Place the media on the disc tray.

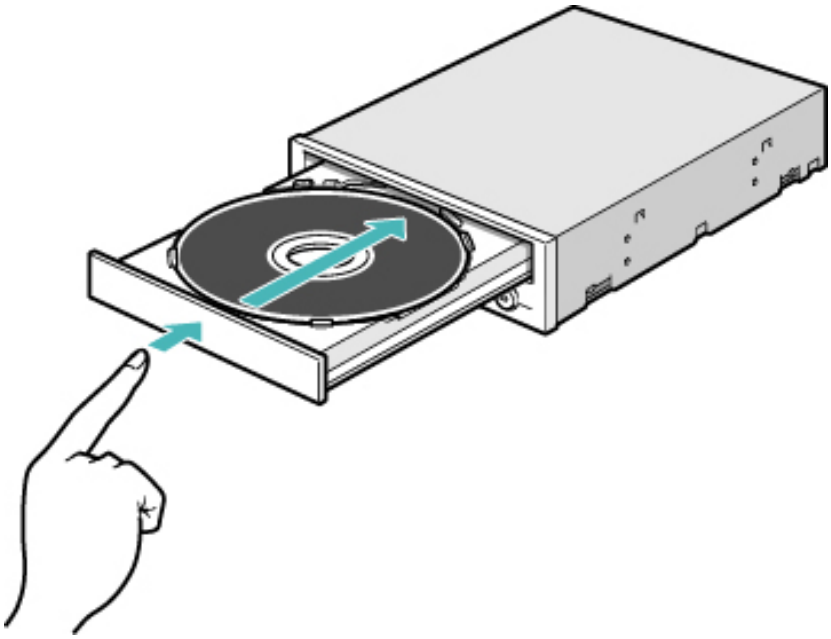
   Be careful not to touch the recording surface of the media.

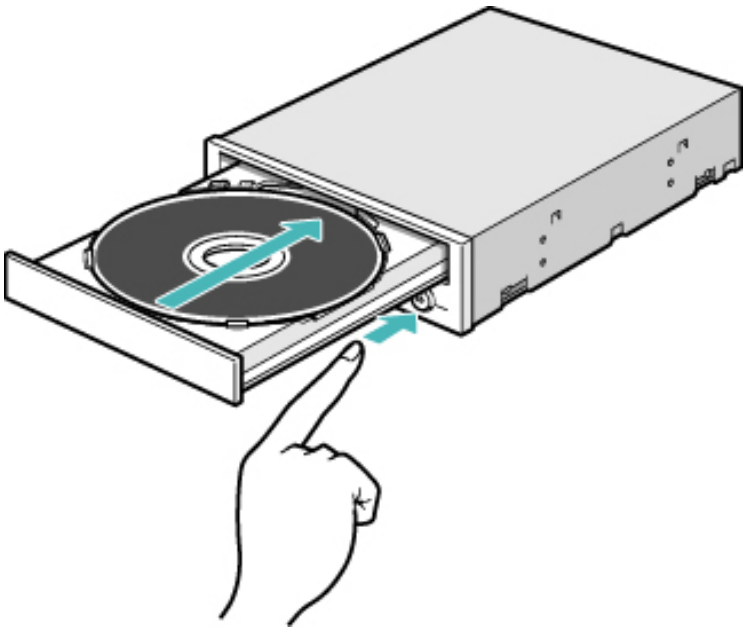
Cautions

- **DVD-R/RW (DVD hyphen R/RW)/DVD-RAM media cannot be used.**
- When using a 120-mm CD, place the disc in the larger circular depression with its label side facing upside.
- When using an 80-mm CD, place the disc in the smaller circular depression with its label side facing upside.
  (Writing to 80-mm CD-R and CD-RW media is not supported. Such media can be read only.)
- Be careful not to touch the recording surface of a disc.
- Discs of irregular shapes (business card-sized, heart-shaped, etc.) cannot be used (written to nor played).
  (The drive cannot use such media even with the use of an adapter.)



3. Load the disc by pressing the eject button or by lightly pushing in the disc tray.





Next

Load the media	Disc ejection
Emergency Eject	Using the Drive in a Vertical Position

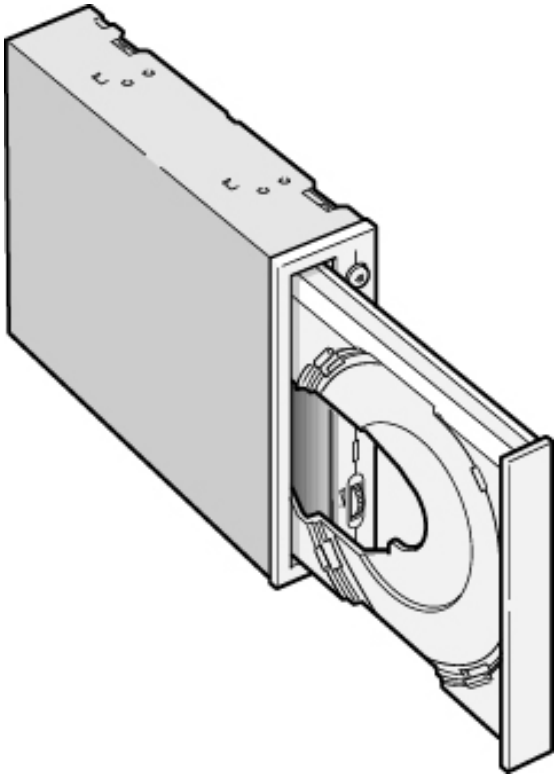
Using the Drive in a Vertical Position

The drive can be installed in a vertical position.

1. Locate the four tabs on the disc tray.
   Turn each of them inwards untill they click into place.

2. When loading a disc, insert it into the inner side of the tabs.

	Caution Cannot be used with 80mm CDs. Cannot be used with business card CDs.



Back

Load the media	Disc ejection
Emergency Eject	Using the Drive in a Vertical Position

Installing the Drive

Specific knowledge of hardware and software is necessary to install the drive. We cannot guarantee against direct or indirect damage resulting from improper connections. Ask your supplier for details of the installation procedure.

Before Installation

Before installing the drive, please note the following points.

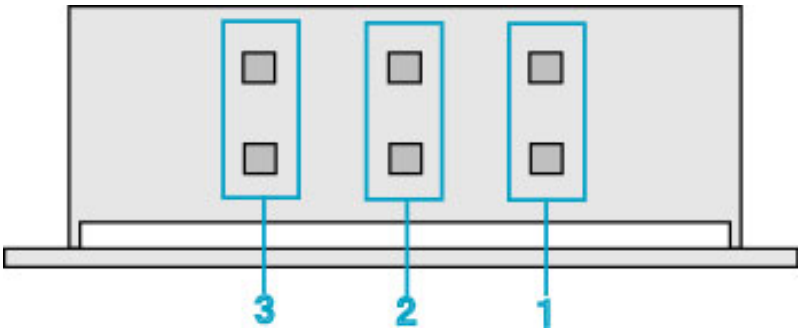
- You will need the following:
  - A Phillips head screw driver of a suitable size to fit the securing screws for the drive unit.
  - The manual for the computer, to know the location of the IDE connector.
- Turn off all peripheral devices of the computer, and the computer itself, and disconnect their power cords from the wall sockets.
- Discharge any static electricity by touching the computer covers etc.
- Before installing the drive, be sure to read the following cautions and information on preparation. Keep a serial number label at the location specified by "READ ME FIRST".

Installing the Drive

1. Jumper Set Up
2. Removing the Computer Cover
3. Mounting the Drive
4. Connecting the Power Connector
5. PC Connections
6. Sound Card Connection
7. Replacing the Computer Cover
8. Device Drivers

1. Jumper Set Up

Before installation, set the jumper on the jumper connector on the rear panel.



1. Master (MA)

   Drive set as Master (factory default)

2. Slave (SL)

   Drive set as Slave

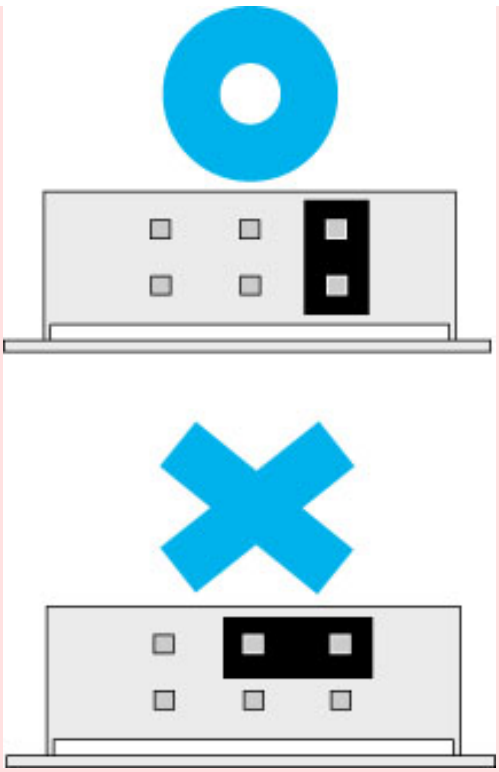
3. Cable Select (CS)

   Drive mode set by CSEL on the host IDE interface

- The drive can be connected as the Master or Slave on an E-IDE (ATAPI) interface.
- When several (up to four) E-IDE devices are connected, each must be set in a unique way.
- A hard disk is normally installed as the Primary Master on the E-IDE (ATAPI) interface. Other E-IDE peripheral devices such as hard drives and CD-ROMs are then set accordingly.

Caution

- If two peripheral devices with the same settings are both connected to the Primary or to the Secondary E-IDE bus, the host computer may fail to run, or may malfunction, so careful attention is necessary.
- Make sure that the host computer is turned OFF when connecting or removing a jumper.
- Must be connect the jumper in the vertical direction. If connected horizontally, the drive may malfunction or be damaged.



- Only one jumper should be installed on the jumper connector. If more than one jumper is installed, the drive may malfunction or be damaged.

Next

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1. Jumper Set Up	2. Removing the Computer Cover
3. Mounting the Drive	4. Connecting the Power Connector
5. PC Connections	6. Sound Card Connection
7. Replacing the Computer Cover	8. Device Drivers

---

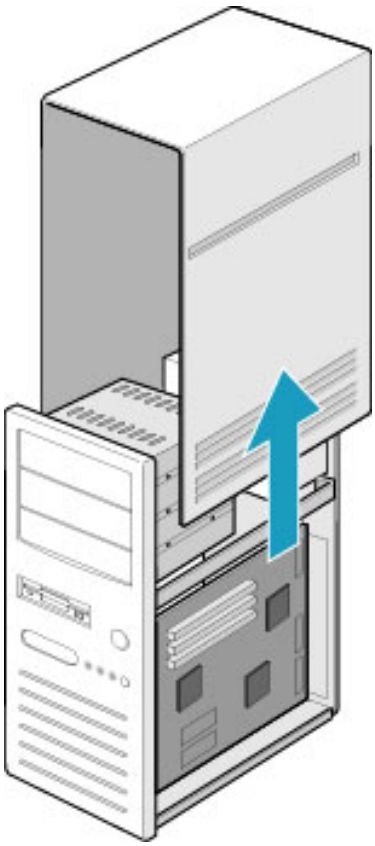
2. Removing the Computer Cover

Make sure all peripheral devices of the computer and the computer itself are turned off, and then remove the cover.

Refer to the manual for the computer for details about removing the cover.

Caution
There may be sharp edges inside the computer take care to avoid injury.

(Example: When newly installing the MP5125A drive into a PC.)



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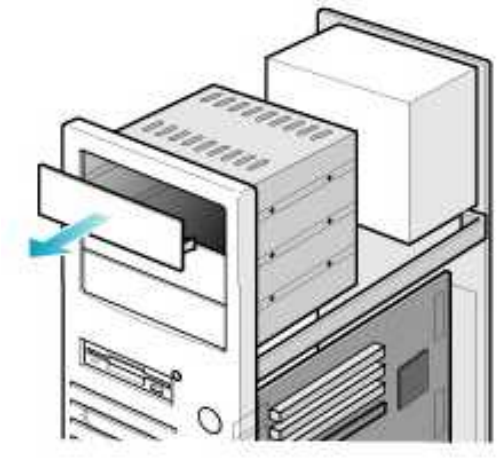
1. Jumper Set Up	2. Removing the Computer Cover
3. Mounting the Drive	4. Connecting the Power Connector
5. PC Connections	6. Sound Card Connection
7. Replacing the Computer Cover	8. Device Drivers

3. Mounting the Drive

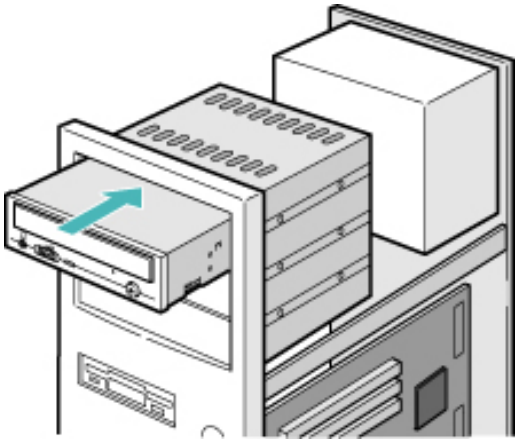
1. Remove the 5 inch drive bay panel from the computer.

   Refer to the manual for the computer for details.



2. Insert the drive unit into the bay.

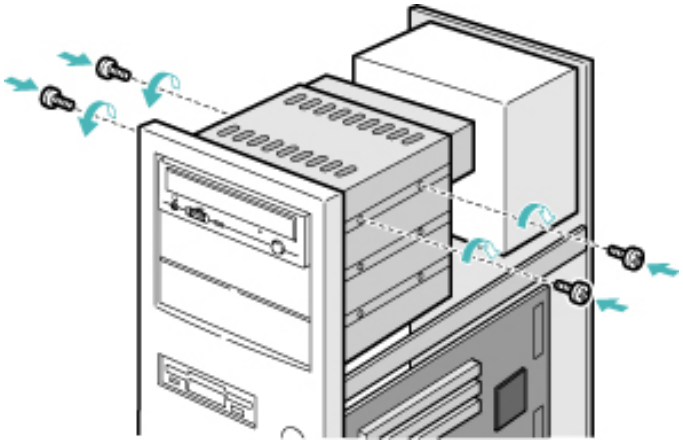
   Do not apply excessive pressure to the cables inside the computer.



3. Secure the drive with the screws provided.

   If there is not enough space behind the drive, connect the E-IDE cables etc. before securing the drive.

	Caution Be aware that some computers do not require all of the four mounting screws for securing the drive.



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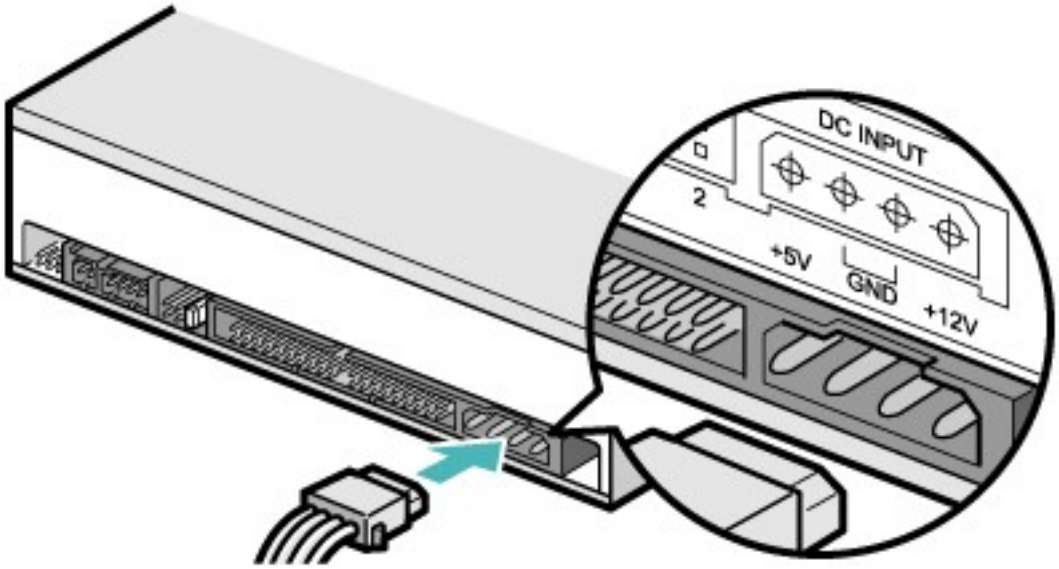
4. Connecting the Power Connector

Connect the power cable from the computer's power supply to the socket on the drive unit, fitting the connector properly into the socket.



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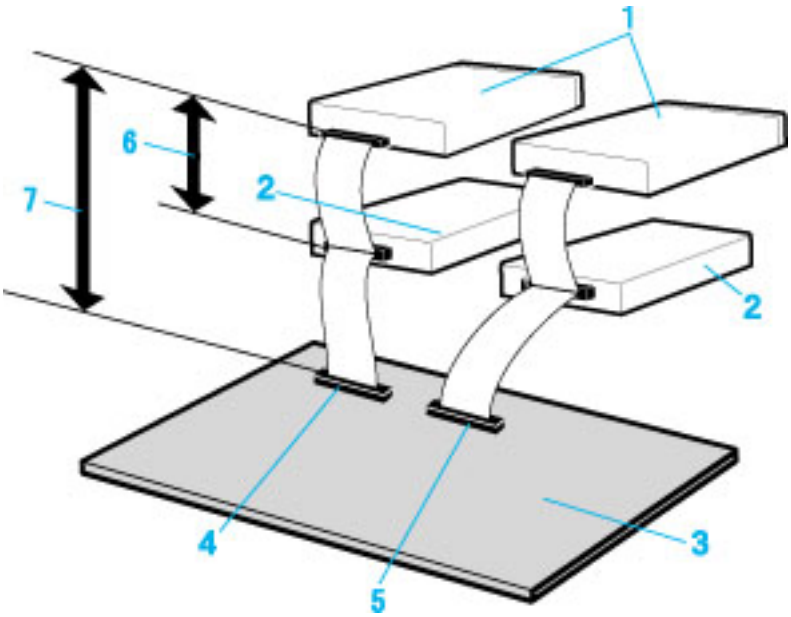
5. PC Connections

The drive connects to the motherboard of the host computer using an IDE interface cable.

Both Primary and Secondary connectors are usually provided on the motherboard, which may be connected as follows:

1. Master
2. Slave
3. Motherboard
4. Primary connector
5. Secondary connector
6. less than 6 inches
7. less than 18 inches



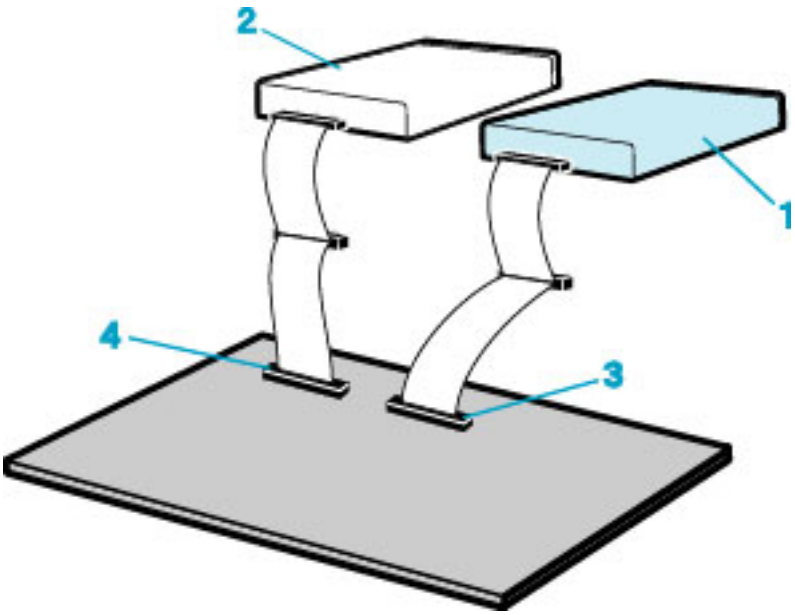
To Install as a Master Drive

To Install as a Slave Drive

To Install as a Master Drive

To install the drive as a Master, the jumper can be left as supplied from the factory.

1. Master drive (MP5125A)
2. Master drive (Booting hard disk)
3. Secondary connector
4. Primary connector
5. Slave drive (Other IDE drive)


2
1
4
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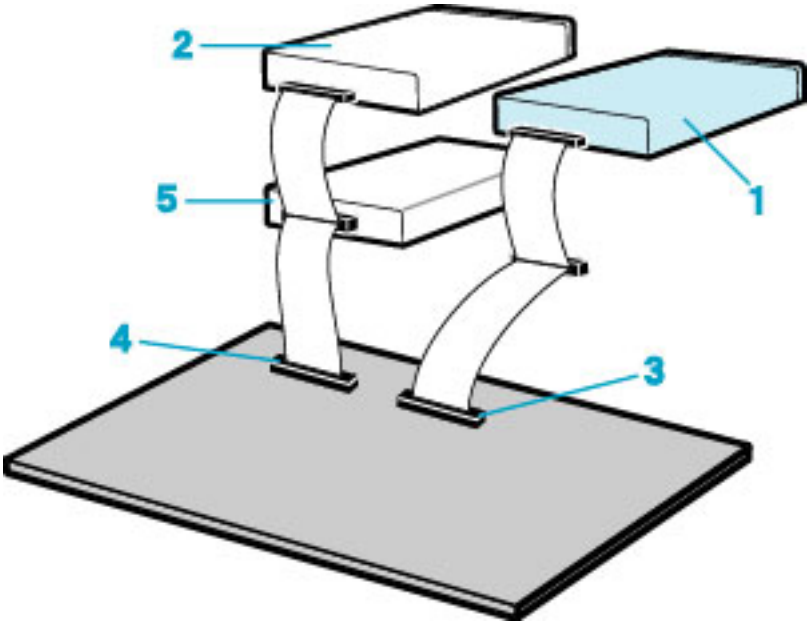
2
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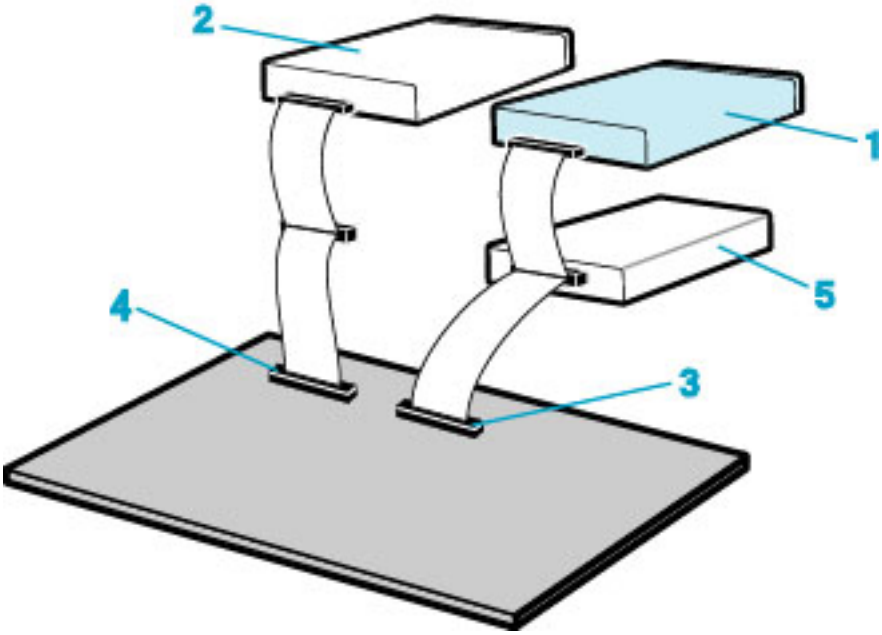
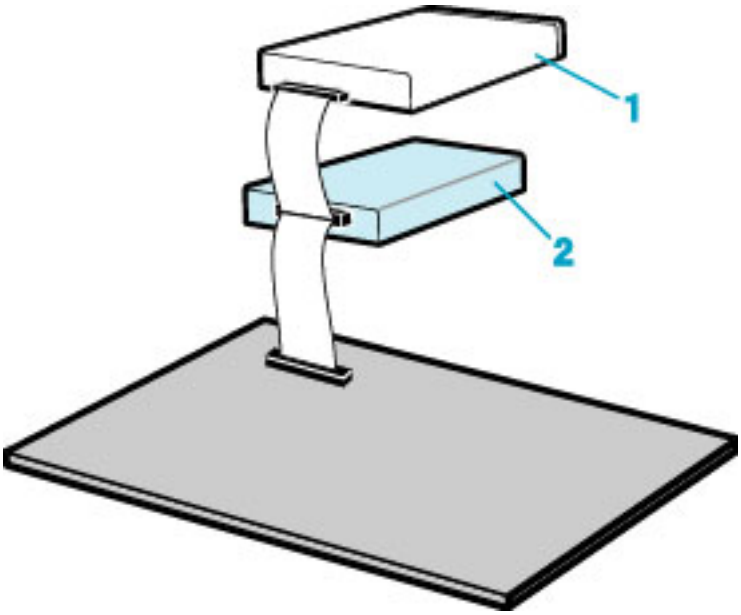
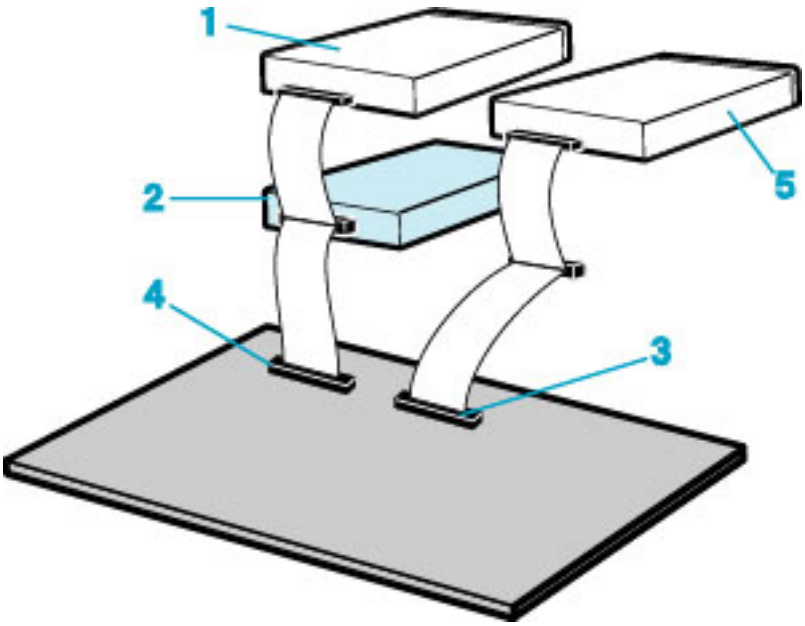

2
1
5
4
3

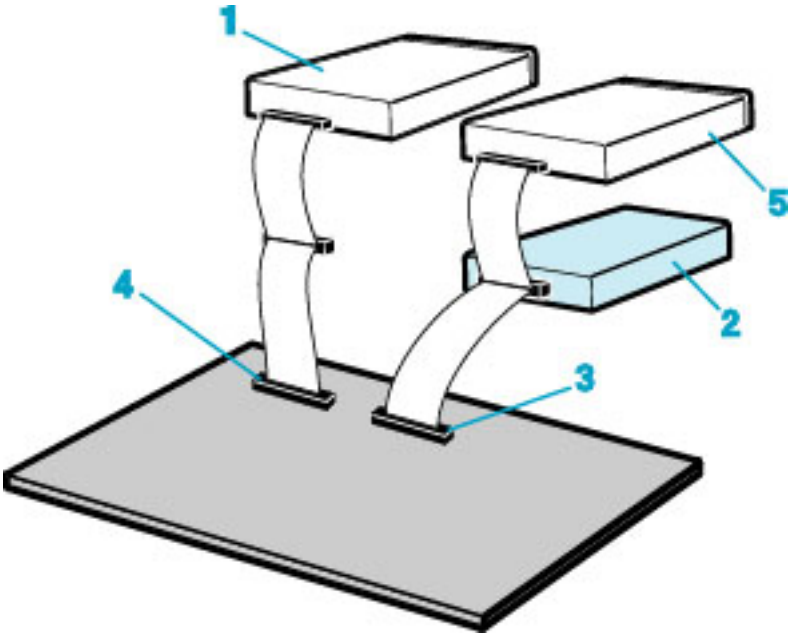
To Install as a Slave Drive

When connecting the drive as a slave drive, change the position of the slave setting jumper pin on the rear of the system unit.

1. Master drive (Booting hard disk)
2. Slave drive (MP5125A)
3. Secondary connector
4. Primary connector
5. Master drive (Other IDE drive)







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6. Sound Card Connection

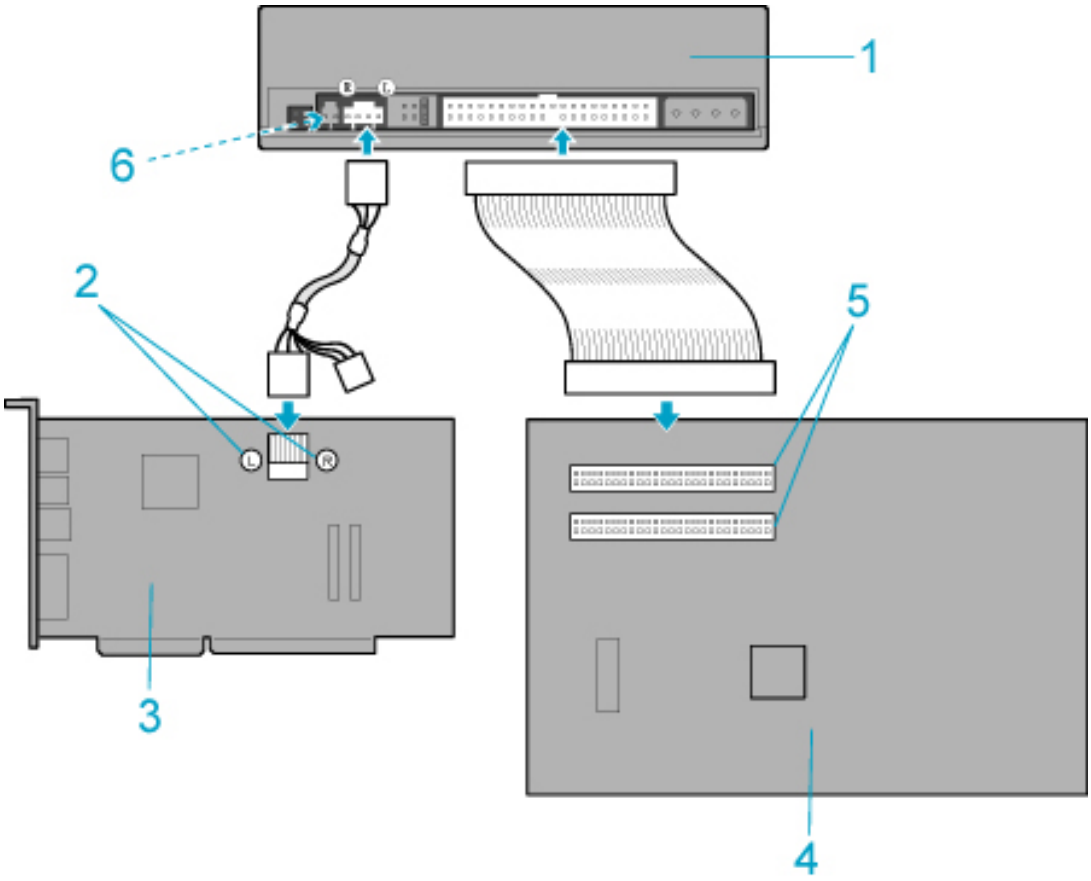
If the computer has a sound card, the drive can be connected to the sound card with an audio cable.
Make sure the connections are oriented so that L corresponds to L and R to R.
Refer to the manual for the sound card for detailed information regarding connection.

Audio digital output

The drive supports S/PDIF(IEC958) for digital audio output. As long as the sound board comes with S/PDIF input, it can be connected externally to the D/A converter. The drive can be used as a CD transporter for playing CDs at the desired sound quality level.

1. MP5125A
2. When L,R
3. Sound Card
4. Motherboard
5. Primary or secondary

* 6. Digital audio output terminal



* Please purchase a digital-audio-capable sound board and a cable at additional cost.

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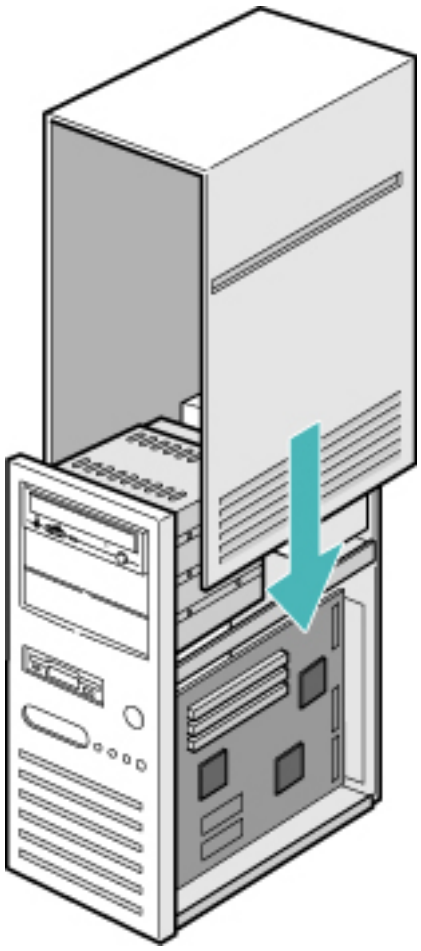
7. Replacing the Computer Cover

When the installation of the drive unit is complete, replace the computer cover.



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8. Device Drivers

When using Windows 98/95, Window NT Workstation Ver. 4.0, Windows 2000 (Professional) Windows XP the installation of any special device drivers are not required.

In order to ensure normal drive operation or if the drive is not recognized by your computer, please check the following:

In order to ensure normal drive operation

If the drive is not recognized by your computer

In order to ensure normal drive operation

For Windows 98/95 Users

- The drive is displayed in [control panels] - [system] - [device manager] - [CD-ROM]
- 32-bit is displayed in [control panels] - [system] - [performance]

For Windows NT Workstation Ver.4.0 Users

- The drive is displayed on the IDE controller in [control panels] - [SCSI adapter] -[devices]

For Windows 2000 (Professional)/XP Users

- The drive is displayed in [control panels] - [system] - [hardware] - [device manager]

If the drive is not recognized by your computer

For Windows 98/95 Users

- If a [!] indicator is displayed on the IDE controller in [control panels] - [system] -[devices manager]-[harddisk controler], you will need to contact your PC manufacturer or the motherboard manufac-turer and get the appropriate IDE controller driver.

For Windows NT Workstation Ver.4.0 Users

- If a [!] indicator is displayed on the IDE controller in [control panels] - [SCSI adapter] -[devices] , you will need to contact your PC manufacturer or the motherboard manufacturer and get the appropriate E-IDE controller driver.

For Windows 2000 (Professional)/XP Users

- If a [!] indicator is displayed on the IDE controller in [control panels] - [system] - [hardware] - [device manager] , you will need to contact your PC manufacturer or the motherboard manufacturer and get the appropriate E-IDE controller driver.

After checking the above-mentioned points, contact the manufacturer of your PC or PC mother-board, if applicable, to obtain an appropriate IDE controller driver.

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How to Use the Drive

Caution
When using CD-ROM/DVD-ROM/CD-R/CD-RW/DVD+RW/DVD+R media, do not attach any stickers or labels to the media. Using discs with labels attached not only causes read and write errors, but data on the disc may be lost due to damage to the media itself.

- Load the media
- Disc ejection
- Emergency Eject
- Using the Drive in a Vertical Position

Specifications

Drive : MP5125A

Type	Internal type
Interface	Enhanced-IDE (ATAPI)
Data buffer memory	2MB
Data transfer speed	33.3MB/sec. (Max.) (Ultra DMA mode2)
CD-RW/High Speed CD-RW Write/Read speed (Ave.)	<Read Speed> 4X: 600KB/sec. 8X: 1200KB/sec. 20X: 3000KB/sec.*1 32X: 4.8MB/sec.*1 <Write Speed> CD-R: 4X: 600KB/sec. 8X: 1200KB/sec. 12X: 2.1MB/sec. CD-RW: 4X: 600KB/sec. 10X: 1.5MB/sec. DVD+RW: 2.4X: 3.38MB/sec. DVD+R: 2.4X: 3.38MB/sec. <DVD Read Speed> 8X: 10.8MB/sec.(MAX)
Average access time	CD 120msec. / DVD 140msec.
Initial processing time	CD-ROM 14sec. or less CD-R/RW (also High Speed CD-RW) 19sec. or less
Mounting direction	horizontal/vertical (eject button upper)
Compatible formats	

Format	Write	Read	Play*2
CD-DA	*	*	*
CD-ROM	*	*	
CD-Extra	*	*	*
CD-ROM XA	*	*	
Photo CD*3 *4	*	*	
CD-i*3 *4	*	*	

	Video-CD	*	*	
	CD-Text	*	*	
	DVD+R	*	*	
	DVD+RW	*	*	
	DVD-ROM		*	

Loading system	Tray type (automatic loading/eject)
Power	DC5V, DC12V
Power consumption	16w
Weight	Less than 1.2 Kg.
Dimensions	146 X 196.5 X 41.3mm

Reliability

Error Rate:	10^{-12} bits or less
MTBF:	100,000hours or greater
MTTR:	Within 30 minutes

Environmental Conditions

	When operating	When not operating
Temperature	5°C to 35°C (No air cooling)	-30°C to 65°C
Humidity	5% to 90% R.H. (No condensation)	5% to 95% R.H. (No condensation)
Vibration	0.035mmpp (10 - 45Hz) 0.025mmpp (45 - 65Hz) 0.2 X 9.8 m/s^2 (65 - 150Hz)	1 X 9.8 m/s^2 (5 to 300Hz)
Shock	2 X 9.8 m/s^2 (3msec. half sine)	40 X 9.8 m/s^2 (11msec. half sine)
Environmental dust	Class 3 million or less (3 million particles of 0.5 micron dustper cubic foot or less)	

*1 Speed is automatically reduced if reading is unsuccessful.
*2 "Play" means playback. Also, "Read" means transferring data.
*3 CD-i and Photo-CD discs require special reader/player. Also, Photo-CD requires a license from Kodak.
*4 Bundled software does not support these writing formats.

The drive's appearance and specifications may change without notice.

* All references to the product in this document are to specifications in effect when the product was released.

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